WHAT IS CLAIMED IS:

1. A data input device comprising:

an impedance sensor arranged with respect to a tracking surface, said impedance sensor having a measurement zone within which said impedance sensor measures an electrical impedance; and

a controller receiving and responsive to said impedance sensor for determining if said data input device is spatially separated from said tracking surface by at least a lift-off detection distance as a function of a measured impedance, said controller initiating a non-tracking mode in which said controller suspends tracking of relative movement between said data input device and said tracking surface when said data input device is spatially separated from said tracking surface by at least the lift-off detection distance.

2. The data input device as set forth in claim 1 wherein said controller is responsive to the measured impedance to detect the proximity of the data input device and the tracking surface relative to one another as a function of the measured impedance when said data input device is in a tracking mode to determine whether said data input device is spatially separated from said tracking surface by at least the lift-off detection distance.

3. The data input device as set forth in claim 2 wherein said impedance sensor is shaped and sized to face said tracking surface when said data input device is in said tracking mode.

4. The data input device as set forth in claim 1 further comprising a housing shaped and sized to engage said tracking surface, said impedance sensor and controller being at least partially enclosed within said housing.

5. The data input device as set forth in claim 4 wherein said impedance sensor is shaped and sized to mount on a surface of the housing and shaped and sized to engage said tracking surface.

6. The data input device as set forth in claim 1 wherein said impedance sensor comprises at least two electrodes.

7. The data input device as set forth in claim 6 wherein said impedance sensor comprises at least four electrodes.

8. The data input device as set forth in claim 7 wherein said impedance sensor comprises at least six electrodes.

9. The data input device as set forth in claim 6 wherein said impedance sensor is a capacitance sensor for measuring an electrical capacitance between said at least two electrodes, thereby determining proximity of the data input device and the tracking surface relative one another as a function of the measured capacitance.

10. The data input device as set forth in claim 9 wherein said at least two electrodes are arranged adjacent one another, said at least two electrodes being substantially equidistant from one another such that the at least two electrodes maintain a minimum clearance with respect to one another.

11. The data input device as set forth in claim 10 wherein a first electrode comprises a substantially circular conductor and a second electrode comprises a substantially annular conductor surrounding said substantially circular conductor, said first and second electrodes maintaining a minimum clearance between one another between an outer perimeter of the substantially circular conductor and an inner circumference of the substantially annular conductor.

12. The data input device as set forth in claim 10 wherein first and second electrodes comprise substantially comb-shaped conductors having digits extending at regular intervals from an edge of each electrode, said digits of said first electrode being interdigitized with the digits of said second electrode.

13. The data input device as set forth in claim 9 wherein said capacitance sensor creates a fringing field capable of determining the proximity of the tracking surface relative to the data input device as a function of measured changes in a dielectric constant of the tracking surface and a dielectric constant of ambient air between the data input device and the tracking surface when separated from one another.

14. The data input device as set forth in claim 9 further comprising a resistance-capacitance (RC) resonance circuit shaped and sized to connect to the capacitance sensor.

15. The data input device as set forth in claim 9 wherein said at least two electrodes comprise a first electrode shaped and sized to mount on said data input device and a second electrode comprising said tracking surface.

16. The data input device as set forth in claim 6 wherein said impedance sensor is a resistance sensor for measuring an electrical resistance between said at least two electrodes, thereby determining proximity of the data input device and the tracking surface relative one another as a function of the measured resistance.

17. The data input device as set forth in claim 16 wherein said data input device passes current between said at least two electrodes, said resistance sensor determining the proximity of the tracking surface relative to the data input device by measuring changes in the resistance between the at least two electrodes.

18. The data input device as set forth in claim 17 wherein said current is direct current.

19. The data input device as set forth in claim 16 further comprising a housing shaped and sized to engage the tracking surface, said at least two electrodes shaped and sized to mount on an outer surface of said housing.

20. The data input device as set forth in claim 19 wherein said housing is formed from material having a higher resistance than the tracking surface.

21. The data input device as set forth in claim 6 wherein said impedance sensor is an inductance sensor and said tracking surface is comprised of a magnetic material, and wherein said controller is tunable to detect relative movement between the data input device and the tracking surface as a function of an inductance measured by the inductance sensor.

22. The data input device as set forth in claim 21 further comprising an inductance-capacitance (LC) resonance circuit shaped and sized to connect to said inductance sensor to interact with said magnetic material of said tracking surface.

23. The data input device as set forth in claim 1 wherein said tracking surface is human skin.

24. The data input device as set forth in claim 1 wherein said lift-off detection distance is no more than about 4 millimeters (0.16 inch).

25. The data input device as set forth in claim 24 wherein said lift-off detection distance is no more than about 4 millimeters (0.16 inch) and at least about 0.5 millimeter (0.02 inch).

26. The data input device as set forth in claim 25 wherein said lift-off detection distance is no more than about 3 millimeters (0.12 inch) and at least about 0.5 millimeter (0.02 inch).

27. A method comprising:

energizing at least two electrodes, said at least two electrodes being operatively connected to a data input device configured to interact with a tracking surface;

measuring an electrical impedance between said at least two electrodes; and

determining the relative distance between said data input device and said tracking surface as a function of said measured impedance.

28. The method as set forth in claim 27 further comprising measuring an electrical capacitance between said at least two electrodes.

29. A data input device comprising:

a resistance sensor arranged with respect to a tracking surface, said resistance sensor having a measurement zone within which said resistance sensor measures an electrical resistance; and

a controller receiving and responsive to said resistance sensor for determining if said data input device is spatially separated from said tracking surface by at least a lift-off detection distance as a function of the measured resistance, said controller initiating a non-tracking mode in which said controller suspends tracking of relative movement between said data input device and said tracking surface when said data input device is spatially separated from said tracking surface by at least the lift-off detection distance.

30. The data input device as set forth in claim 29 wherein said controller is responsive to the measured resistance for detecting proximity of the data input device and the tracking surface relative to one another as a function of the measured resistance when said data input device is in a tracking mode to determine whether said data input device is spatially separated from said tracking surface by at least the lift-off detection distance.

31. The data input device as set forth in claim 29 wherein said resistance sensor further comprises at least two electrodes, said data input device adapted to energize said at least two electrodes with direct current and measure the resistance between said at least two electrodes to determine if said data input device is spatially separated from said tracking surface by at least the lift-off detection distance.

32. The data input device as set forth in claim 29 wherein said resistance sensor further comprises at least two electrodes, said data input device adapted to energize said

at least two electrodes with alternating current and measure the resistance between said at least two electrodes to determine if said data input device is spatially separated from said tracking surface by at least the lift-off detection distance.

33. A method of detecting lift-off of a data input device from a tracking surface, said method comprising:

energizing at least two electrodes, said at least two electrodes being operatively connected to the data input device configured to interact with the tracking surface;

measuring an electrical impedance between said at least two electrodes; and

initiating a non-tracking mode, in which a controller suspends tracking of relative movement between said data input device and said tracking surface, as a function of said measured impedance when said data input device is spatially separated from said tracking surface by at least a lift-off detection distance.

34. The method as set forth in claim 33 further comprising initiating a tracking mode, in which the controller tracks relative movement between said data input device and said tracking surface, as a function of said measured impedance when said data input device is not spatially separated from said tracking surface by at least a lift-off detection distance.

35. The method as set forth in claim 33 further comprising measuring an electrical capacitance between said at least two electrodes.

36. The method as set forth in claim 33 further comprising measuring an electrical resistance between said at least two electrodes.